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ABSTRACT

Previous studies on emergent literacy have shown that since young children learn a lot about writing and reading before they attend school, teachers can build on this knowledge in an integrated instructional program. But just how reading and writing are intertwined in the learning process has not been clearly defined. This study investigated the progress of the writing and reading of 18 children in an inner-city school in order to identify common strategies and to compare their use across the tasks as they approximate writing and reading behaviors through kindergarten and grade 1. Within an environment conducive to language learning the children were asked to read and write in any way they could. The findings showed that children initially explored the mechanics of written language in their strategies in the reading of storybooks. But in the context of storybook reading they developed composing strategies which later appeared in their writing. In other words, writing and reading supported each other with a transfer of strategies occurring in both directions. (Thirty references and five figures are included, and an appendix enumerating principles which nurture literacy is attached.) (JK)

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CENTER FOR THE STUDY OF READING

A READING RESEARCH AND EDUCATION CENTER REPORT

Technical Report No. 418

CONNECTIONS IN LEARNING TO WRITE AND READ: A STUDY OF CHILDREN'S DEVELOPMENT THROUGH KINDERGARTEN AND GRADE ONE

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Abstract

Research into emergent literacy shows that young children learn a good deal about writing and reading before they attend school. Teachers can build on this knowledge in an integrated instructional program. But just how reading and writing are intertwined in the learning process has not been clearly defined. The author of this paper undertook to trace children's development through Kindergarten and Grade 1. Within an environment conducive to language learning she asked children to read and write in any way they could, extending her definitions to include all responses to reading and writing events. She analyzed the progress of 18 children to identify common strategies and compare their use across the tasks. She found that children initially explore the mechanics of written language in their strategies in the reading of storybooks. But in the context of storybook reading they develop composing strategies which later appear in their writing. In other words writing and reading support each other with a transfer of strategies occurring in both directions.

CONNECTIONS IN LEARNING TO WRITE AND READ: A STUDY OF CHILDREN'S DEVELOPMENT THROUGH KINDERGARTEN AND GRADE ONE

Reading and writing are two aspects of the same language system. We would, therefore, expect them to be mutually-supportive in literacy learning. Yet, the vast majority of researchers have focused on reading and the effectiveness of the various methods used to teach it in isolation from writing. some researchers such as Read (1971) have investigated preschoolers' developing knowledge of phonology as indicated by their early writing. And others have described the writing process, and how it develops (Graves, 1983). But research which traces the concurrent development of writing and reading, examines the relationships between them, and considers their relative contributions to literacy learning are rare, especially in the context of school learning. Such information is important for researchers and educators alike. Without it, there will not be a complete picture of reading or writing acquisition, or of literacy learning in general.

Teachers have traditionally taught reading first, but some teachers/researchers are suggesting that children find it easier to write first, with children spelling in any way they can (Chomsky, 1979; Clay, 1975; Hurst, Dobson, Chow, Nucich, Stickley & Smith, 1984). An interesting facet of this approach is that the young writers are readers also, for they read their own writing (Aulls, 1975; Dobson, 1986). How does writing and the reading of one's own writing affect the acquisition of reading? Conversely, how does reading affect writing? Educators need such information from integrated studies before they can make informed decisions about curricula. They need to recognize the strategies involved in reading and writing and the ways they interact in the course of the development. They also need to reflect on the teacher's role in an integrated reading/writing program. Knowledge about children's growth as readers and writers will enable teachers to set up the kind of environment which promotes literacy learning.

This paper addresses some of these concerns with a report on children's growth as writers and readers over their first two years at school. It includes observations of writing and reading strategies at the same points in time and considers connections in their development. The comparison includes a look at reading strategies in two contexts: the reading of one's own writing and the reading of storybooks. Because the definitions of writing and reading are extended to include all writing-like and reading-like events even children's earliest responses appear in the report.

Preliminary Studies

Teachers who reflect on their pupils' work are naturally led into research because their constant question is, "What and how are my pupils learning?" They are also uniquely privileged to conduct their own investigations for they have constant access to the same children over time and a measure of control over the teaching/learning environment. My colleague, Marietta Hurst, and I were resource room teachers and in that capacity we attempted to put recent theoretical formulations to the test. Hurst (1982) searched the literature for key elements which foster language learning, and listed them as environmental principles (Appendix A contains the 1985 revision). With these in mind she and I set up a classroom environment in which we expected children to communicate as readers and writers in any way they could. The progress of reluctant readers (Dobson, 1985) and Grade 1 writers (Dobson, 1986) indicated the effectiveness of the environment, and supported current views of writing development (Gentry, 1982; Temple, Nathan & Burris, 1982). They also stimulated questions about connections between learning to write and learning to read.

The next step was to undertake a series of planned observations and interactions with children in a writing/reading context. We decided on systematic, bi-monthly sampling sessions from the beginning of Kindergarten to the end of Grade 1 for a total of 26 sessions. In each sampling session we asked children to draw a picture and write about it and to read their work when they were through. We

also asked them to choose and read a storybook from a preselected group of three. The storybooks, unknown to the children, were from the *Get Ready* and *Ready Set Go* series (*Story Box Readers*, Melser, 1980). Each book is eight pages long and contains structural patterns of language based on rhythm, rhyme, and/or repetition. On one occasion we presented a book known to the children, *Brown Bear, Brown Bear* (Martin, 1970).

The sessions took place in the resource room where we maintained the nurturing environment which had sustained our previous studies. To narrow our observations and reactions we constructed checklists of characteristics which seemed to act as signposts to children's development (Clay, 1982). The findings indicated how children learn to write and read when communication of meaning is the central focus (Dobson & Hurst, 1986).

Reading and Writing Connections

In this paper I report on the writing and reading of 18 children from the Dobson and Hurst study. These children were attending an inner-city school and a number were learning English as a second language. The analysis of their progress suggested continuous rather than stage-like development with new strategies gradually becoming integrated into existing patterns (as in Mason & Allen, 1986). The effect was cumulative, but there were also shifts of priority and focus. For example, readers initially used illustrations a a basis for their construction of text; later on they favoured the print, but picture interpretation continued to play a strategic role, supplementing and sometimes prompting their print-related strategies.

Learners must acquire certain insights before they can use written language in a conventional way. And some insights (or understandings) are logically prior to others. For example, children need to expect a print/speech match before the alphabetic principle will make any sense to them. However, children come to understand the basic working of written language in various ways, depending upon their experiences.

This study sought to identify children's strategies as they approximated writing and reading behaviours over time. The following documentation focuses on these strategies and the connections between them at five levels of understanding. Each level reflects a more advanced state of print awareness in a progression toward the conventional. The understandings characteristic of each level are as follows:

Level 1: That the contents of books are meaningful and can be read as such.

Level 2: That spoken text matches with the written text (time-space match).

Level 3: That the alphabetic principle is used to match speech and print, and thus produce a stable wording.

Level 4: That words appear on a page as units of print, separated by space.

Level 5: That morphemes (word, base, or affix) have a constant spelling but they can be combined to form new units of meaning.

Parallel to these insights of print awareness were developments in children's knowledge of stories--including story structure, and how stories are represented along the pages of a book. Children's compositions also revealed a developing repertoire of book-like language. The paper attempts to relate the development of these awarenesses at each level of print awareness.

The understanding of all but five children was at the first level at the beginning of the study. The five began at Level 2. But I do not suggest that Level 1 represents the beginning of literacy development.

All the children's earliest responses indicated some knowledge of literacy which they could use to approximate the behavior of writers and readers.

Level 1

At this level children used many similar strategies when responding to reading and writing tasks. They followed conventional book-handling procedures except for page sequence when the right-hand page often claimed their first attention. When reading their own writing or the storybooks they applied their knowledge of meaning and grammar to the accompanying pictures and constructed a possible text. They paid little attention to their own representations of writing (scribble-like or print-like) or the printed text, but touched the appropriate parts of the pictures as they spoke.

The children's early and extensive use of names suggested that they already had a well-established naming strategy. Zelko read his writing by naming the people in his drawing,,

> That's me. That's my friend. That's my mom. That's my dad." And on the same day he read the storybook by naming the animals pictured in the illustrations,
>
> "Fish in the water. And a butterfly. Cat go in the house."

The tendency to name is apparent in both contexts, but the storybook response involves more complex language structures and concepts. It suggests location ("in the water") and movement ("cat go in the house"). Such elaborations appeared first in children's storybook reading, and the most likely explanation involves the quality and quantity of the illustrations. It was several months before Zelko used similar constructions when reading his own writing.

The examination of children's writing revealed more about their print-related strategies. They wrote scribble-like and/or letter-like and/or number-like symbols, and sometimes identified them. They also commented on how and why they were writing as they did. One child, for example, pointed to a number he had printed and incorporated it into his message,

> "That's the ghost's ten dollars."

And Janie explained,

> "I just wanted the *A*'s to follow that *O*."

Such comments revealed that children were thinking about strategies of transcription as well as composition and knew a number of metalinguistic terms. At this level such information was seldom available from their storybook reading. Writing focused attention on print and, therefore, it seemed that print-related strategies were developing in this area first.

Level 2

The children's first attempts to match written text and spoken words occurred in the context of their own writing. It was January 9th when Zelko initiated the strategy of pointing to his writing as if it corresponded to his reading, even though he had not written any words. When reading a storybook on this same date he continued to point to the illustrations, but on March 7th, two months later, he adopted a similar finger-tracking strategy in that context.

On April 19th when reading his own writing he indicated a unit-to-unit match between the words in his message and his printed letters. In reading that same day he finger-tracked the print of the storybook so that the beginning and end of his spoken sentence coincided with the print. Both

strategies indicate an awareness of the necessary time-space match between speech and print but the unit-to-unit strategy is the more sophisticated.

Leslie's initial reading of a storybook indicated that he knew quite a bit about the task. The following example shows him trying to use letter names, knowledge of a particular story, and picture cues. But he could not integrate these sources of information to produce a meaningful reading. Upon reaching the last page, he settled on the illustrations as a guide to text invention.

	Reading	**Text**
L:	I know that one is *G*. And that's the first name of Graham. I have Leslie Graham.	Go, Go, Go
R:	Say how it goes. Say what is in your head.	
L:	I'm trying to think. Let me see . . . what that fox is doing. I'll try to think what that fox is doing so then I'll know.	
R:	Tell me what's in your mind.	
L:	You know what all I can get in my mind is?	
R:	What is that?	
L:	Only the words.	
R:	What are the words?	
L:	Let me see.; Can I turn the page? (pause) I'm not very good at thinking.	I fly.
R:	I think you are.	
L:	A bit good. All I can think about is a cat and the owl in the pea green boat.	I swim
R:	Let's keep going.	
L:	Now I should start. (Turns 3 pages) Hey! X O X. (identifying print on a vat)	
R:	What are you thinking now?	I jump
L:	I have no idea (pause). Now let me see what the words are. "Stop hopping Mama." And Mama's saying, "I can't stop hopping. We have to meet Daddy, remember?"	and I ride.
R:	So you did have a good thought after all.	
L:	Only on the past page.	

Leslie's initial writing sample contained the correct spelling of his name and other letters and numbers. When he read his own work he commented on the message and his transcription. He pointed to his own name while reading "me."

> "See! I wrote on the lines. I wrote me in the chalk drawings. Those chalk drawings can be very funny. There's a squirrel in there. Look at the funny *L*." (he had printed the lower case form, *l*)

Leslie explained his message and its representation but he did not integrate these two aspects to produce a conventional piece of work. His reflections on his own thinking and language indicate an awareness of print (see Stewart & Mason, in press), and of strategies for its use.

Some children at this level read storybooks by repeating sentence patterns across successive pages, while others adopted a story-like framework. Their language was also becoming more book-like (see Sulzby, Barnhart, & Hieshima, in press). In general, the composition aspect of their storybook reading was more elaborate and complex than their reading of their own writing.

Level 3

Children gradually refined their writing strategies to incorporate more features of the print, finally making an alaphabetic match between speech and print. In order to make this match children needed to know:

1. The form of some letters and their identification by name.

2. The match between speech and print.

Children were now purposely attempting to translate speech into print. They were articulating a message as they wrote and representing its sounds as they perceived them (Read, 1971). Writers using such a strategy need to plan the wording as they write, or even before they write. While their previous representations looked somewhat like writing, the meaning actually resided in their pictures and, therefore, the wording varied with each rereading. Now that they were transcribing words into print, the message was governed by the written text and thus remained stable.

Significant signposts to Zelko's development occurred as follows. On January 9th he made his first attempt to track the print, thus suggesting that his development had reached the second level. On February 9th he wrote *ABCDE* and said, (Those are) "the ABC's." For some months he explored these strategies of tracking and naming letters, but did not seem to attempt a precise message. After 10 months at this level, on November 20th of the Grade 1 year, he produced a message which indicated a new level of development. He printed RABO HOS, and read it as "rainbow house."

It was March 20th, four months later, when he attempted to read the print in a storybook word by word. And on that occasion he read with 87% word accuracy. This abrupt change of strategy was characteristic of Level 4 and will be discussed in that section. Over all, the alphabetic strategy appeared in the children's writing and their reading of that writing three to nine months before it appeared in storybook reading.

Shirley's entry behaviour placed her at Level 2 at the beginning of Kindergarten. At that time she printed some letters, and tracked and named letters in storybooks. She began moving into Level 3 with a *Mighty Mouse* story she had written on May 1st. She indicated two matches initially (M for mouse and S for saved), but as she read she reached for a pencil to represent another word (mouse). She corrected the omission with an *M*, and then retrieved her original wording on two successive readings.

Once she began to match letters and sounds she continued to do so. Successive examples of her writing the next fall (Grade 1) indicate rapid progress.

1.	TWATN	There was a tornado.
2.	TW-AMSLD	There was a magical land.
3.	TR WZ A BT A FL HS	There was a beautiful house.
4.	TR WZ A BTAFL PESTD	There was a beautiful present.

The first two lines show Shirley's awareness of the need to represent each word (or, perhaps, each syllable) and, typically, she chose the initial consonant (Gentry, 1982; Read, 1971). The dash-like mark on line 2 seems to indicate a separation between two elements in her sentence. She did not comment on this strategy but two other boys who used a similar strategy explained it in this way.

Dirk: They connect . . . you know, they divide up the . . . so they don't go into each other.

Alan: They go together, but it keeps it away from each other.

Was the line meant as a dash or a hyphen? The children's explanations suggest both functions. Other children used periods, colons, and slash marks to indicate separation between phrases and words prior to their use of spacing. One reason may be the need to fill space (Temple et al., 1982) but another may be the wish to indicate connections.

Two more weeks (line 3) and Shirley was representing the sounds of all the consonants and separating syllables with space. Two weeks later and she recognized "beautiful" as a word unit and spaced it accordingly. She also represented the short vowel, /e/, in "present." These strategic changes are typical of Level 4 and are discussed in that section.

At the time of the *Mighty Mouse* story Shirley was not using her knowledge of the alphabetic principle in her reading of storybooks. On the same date she chose the book, *Silly Old Possum* (Cowley, 1983). She began with an intent look at the print on the title page. "S?" she said, and paused. Then she began to invent a text which was compatible with the illustrations. At times she tracked the print but her reading was not governed by its features.

At this level children used quite different reading strategies to respond to the two texts. When they read their own writing they had the support of knowing the content and the wording. They needed only a minimal number of graphophonic cues to retrieve the message as written. The unfamiliar storybooks did not offer this kind of support, nor did the children have enough knowledge of the graphophonic system to make a meaningful reading on their own. Thus, they continued to use the illustrations to construct a possible text.

There were two instances when the support was available in the context of storybook reading. The first occurred when children used the name sound of the first consonant of a predicted word as the principal clue to locating it. Leslie's initial use of this strategy to read the book, *A Monster Sandwich*, resulted in an interesting self-correction. (His asides are bracketed.)

Reading	Text
"One day Jenny and Thomas went out	Put some cheese on it.
(Oh, God. Nothing starts with a *J*.)	
"My best is Swiss cheese.	
(Ah, it starts with a *C* - /s/wiss.)"	

Leslie found the initial consonant *C*, in the text and matched it with the /s/ in "Swiss" in his second reading. Such a strategy combined with picture cues can result in word identification, but it will not reveal the wording of an entire story.

In the second situation children were offered the storybook, *Brown Bear, Brown Bear*. Because they had experienced this book they had some knowledge of its content and wording. Therefore, they could use their knowledge of initial consonant sounds to confirm the match betwen spoken words and their corresponding units in print. Leslie's question seems to indicate that he understood the possibility of initiating a new strategy.

L: Am I supposed to just do this--just turn the page?

R: No, you're supposed to read them.

L: Oh!

In the first six pages (two or three lines each) he dipped in and out of the print. He achieved a number of word-unit matches, some of which were word-perfect. On page 7, he began, "What do" (pointing to *Blue horse*) stopped, went back and corrected to "Blue horse," and then proceeded to stay with the print for four more pages. As he read he heavily emphasized the word units, reading accurately except for one recurring phrase, *looking at me*. But it was laborious, for he said:

L: I just turn a few pages--so it won't be so long, right?

After skipping four pages, he gradually read more rapidly, adding the new strategy of using one part of the refrain a second time to stand for the problem phrase.

Previously, longer and more elaborated stories had seemed to signal progress. But once the children began to try to match sounds and letters in writing then they were more successful if they reduced the length and complexity of their compositions. The examples of Shirley's writing, previously listed, are similar in structure and content but show her working on aspects of transcription. Other children struggled along for sometime without making such adjustments and it took them longer to refine their startegies toward the conventional.

Level 4

Children gradually refined their writing strategies, making more conventional letter/sound associations, spelling more words as visual units, and representing more of the surface sounds in words. They began to use spaces to demarcate word boundaries. The appearance of spacing was critical, for it signalled an awareness of the word as a unit in language (Henderson & Beers, 1980) and a strategic change from representing sounds to representing words. (See Figure 1 for what Dirk wrote.)

[Insert Figure 1 about here.]

On the day Shirley wrote line 3 (There was a beautiful house), she suddenly introduced a new storybook reading strategy. She followed the print word by word and identified 25 of the 38 (66%) words in the book as written. She lost the meaning on two occasions only and at those times her errors were syntactically appropriate. She seemed to identify many words at sight but she also sounded through an unfamiliar word. She used graphophonic and picture cues to make three self-corrections. Two weeks later she read 85% of the words in her storybook as written.

Once the children could identify a number of words, they used semantic, syntactic, graphophonic and picture cues to predict the rest. At first their reading was a bit choppy as they carefully attempted to match each spoken and printed word. Sometimes they focused so heavily on the print that they temporarily lost sight of the meaning, but their comments, hesitations, and self-corrections indicated that meaning was still the central focus. In the next example Dirk read "him" for *home*. This error is understandable at the word level but, as he pointed out, it doesn't make sense. He was equally doubtful about his substitutions of "chickens" for *hens*, this time addressing the print, but seemed satisfied when he realized it sounded all right. On the next page he arrived at the solution of omitting the problem word, *home*, noting that he had maintained the meaning.

> Go him? (That doesn't make sense), said the chickens.
>
> (That gots to be a *Z* or a *S*. I think it should be a *S*.
> Hey! That makes sense.)
>
> Go, said the ducks. (We don't even need that word.)

Within a short period of time children became more fluent and conventional in both writing and reading.

Level 5

Several strategic trends emerged across children's reading and writing. One was a development from sounding-out strategies to strategies involving the recognition and representation of words as units of meaning (see Ehri, in press). Spelling had become so conventional that words could be deciphered without the assistance of the writer. Punctuation marks appeared in some children's writing, although not necessarily in conventional places (see Figure 2).

[Insert Figure 2 about here.]

Jay and I discussed this new feature:

R: How did you know to do these? (pointing at periods)

Jay: Mrs. S. told us to put those.

R: How did you know where to put them?

Jay: After my writing I have to put a period.

Only a few months before Serge had been working to make letter-sound associations. Now his fluent reading and confident remarks reflected an ability to recognize word units at sight.

R: Have you read this book before?

Serge: No, I just know the words.

His writing included the favorite story, *Jack and the Beanstalk*.

[Insert Figure 3 about here.]

Children's increasing control over aspects of transcription enabled them to focus more intensely on matters of composition. Their writing showed more attention to storybook language and structure. It now stood on its own without the context of a drawing. Some children reversed the previous order of drawing, then writing; they wrote first and then illustrated their written story. In addition to writing journal pieces and retelling stories children wrote original stories like Shirley's.

[Insert Figure 4 about here.]

Children's fluent reading enabled them to concentrate on comprehension and they seldom failed to make sense of a piece. Whereas they had previously looked to drawings or book illustrations for the meaning, now they looked to the print and the context of the story. The children used meaning and syntax as cues for prediction and one child used the rhyme scheme to identify an unknown word.

Discussion

The findings highlight the mutually-supportive and complementary nature of the development of children's reading and writing. But they also reveal certain differences in the way strategies develop across the two tasks. For example, children tried out and refined their print-related strategies in their own writing and the reading of that writing, only later applied these strategies to the print in storybooks. But, and in contrast, children composed richer and more complex messages in response to storybooks than they did in their own writing, which suggests that story-telling (i.e., composition) initially develops in this context.

Print-related strategies. The first major finding concerned the initial development of print-related strategies in writing and the reading of it. At Level 1, children attempted representations of writing, including print-like symbols and their own names. They didn't refer to them as they read, however. A major advance occurred when children began to match time spent reading their messages and with the amount of writing. They used at least four different strategies to achieve a time-space match.

1. They slowed down or speeded up their finger-tracking according to the amount of print available and the length of their story.

2. They tracked the lines of print several times until the message ended.

3. They added extra letters to accommodate a longer story.

4. They matched a printed letter to a single spoken word or syllable omitting or adding letters as necessary.

They still looked to their drawings as the source of meaning but they were also taking account of their written representations. It was some time before they used similar strategies when responding to storybooks.

At Level 3, children applied the alphabetic strategy in writing, and reading that writing. Children initiated the strategy in their own work three to nine months before they applied it to the words in unfamiliar storybooks. They generally began with a letter-name strategy (Read, 1971) applied to initial sounds in words and set down as a letter string. Sheryl's (line 1) and Kathleen's message (see Figure 5) are typical. Such a phonetically-based strategy is very functional for writers, because it enables them to choose words which best convey their message.

[Insert Figure 5 about here.]

Children used the contextual support of a known meaning and wording when they read their own writing. Somewhat similar supports were present when they read such familiar storybooks as *Brown Bear, Brown Bear*. In this case their knowledge of story and language provided a scaffolding for the use of strategies that had not yet matured, and they succeeded in a way that was otherwise beyond them. Some researchers have elaborated on the benefit of repeated readings for children's growth as readers (Doake, 1979; Holdaway, 1979).

Writing and reading have different requirements, and these requirements make it necessary for learners to attend to different aspects of written language. The need to represent writing directs writers' attention to print, including the selection of letter forms, the organization of a page and other mechanical details involved in transcription. Because writers control the print, they seek out and pay attention to information that is purposeful to its production.

Children who construct their own written representations need to make decisions about form as well as content, and these decisions precede writing and accompany it. Therefore, it is not surprising to find explanations about thinking and language occurring earlier and more often in the context of the writing session. Such comments suggest that children try out the mechanical aspects of the written language system, including its vocabulary, in that situation.

When the children finally incorporated a graphophonic strategy into their repertoire for reading unfamiliar storybooks they moved from a strategy of text construction directly to the integration of graphic and contextual cues. There was little indication of an intervening stage in which readers focus so heavily on the print that they lose the meaning.

Why did this change in children's storybooks reading strategies occur so suddenly and completely? One reason may be the considerable experience they had had as readers of their own written texts. They were writing almost daily in their classrooms and this activity included reading their own work. They read to themselves and also to their teachers (as documented in Dobson, 1986) using conventional reading strategies. As their spellings became more conventional their own printing began to ressemble the print in storybooks. And what they could identify in one context they could identify in another. Once they realized they could apply their reading strategies to decipher print in storybooks they were proficient enough to read with meaning as a central focus. Kendall, Lajeunesse, Chmilar, L. Shapson & S. Shapson (1987) found a similar transfer of strategies when they investigated the ability of English-speaking children, who were enrolled in French immersion programs and learning to read texts written in French, to read English texts.

The strategic change in the children's reading of storybooks coincided with more conventional writing, including spelling representations of short vowels, visual approximations and spacing of words. Initially, print-related strategies developed in the context of writing, but now the direction of influence altered in favour of storybook reading. By the end of Grade 1 (which was also the end of the study), the most advanced group of children were reading text as written, and that text was usually more complex in language and content than their own writing.

Composing strategies. The second major finding was that children initially develop composing strategies in their reading of storybooks. This finding seems to go against conventional wisdom which associates composition with writing. But in the context of this study the children were asked to respond to storybooks before they had adopted conventional print strategies. This circumstance seemed to direct their attention to the illustrations which they used to construct a plausible text. As readers of storybooks their control lay in text invention and thus they developed strategies in this area first.

The children's initial problem was to figure out the illustrations. At first they reacted to each picture as a discrete unit, naming or labelling the pictured objects. But they soon began to try and relate one picture to the next and eventually they came to construct stories which extended across the pages of the storybooks. The successive pictures in the books seemed to encourage this trend but the children were not above changing the order of the pages to fit with their own idea of an appropriate story. On one occasion Dirk read a few pages and then decided to alter the format to fit with his preferred interpretation. The book was about pigs and houses, and the first illustration showed a house made out of bricks. He turned to the end of the book and began reading towards the beginning. In this way he was able to retell the story of *The Three Pigs* and end with the pigs all safe in the brick house.

Storybook illustrations seem to stimulate detailed descriptions and explanations and this additional content requires more complex language structures. Over time, children increasingly used story-like structures and book-like language (Sulzby, 1985). Children did not attempt to write stories which continued from page to page until they reached an advanced level in their ability to transcribe. In fact, children reduced the length and complexity of their compositions when they first put the alphabetic principle to use. Once they had worked out strategies for transcription in writing, then they were free to focus on composing strategies. And only some children reached this level by the end of the study.

Conclusion

This study is based on a developmental view of literacy learning which suggests that learning occurs through successive refinements (Bissex, 1981). Thus, I did not expect conventional representations at the start but looked beyond the children's representations to infer strategies and understanding. Such inferences are an important source of information to assess and evaluate children's progress and for reflections on the appropriateness and effectiveness of teaching practices.

I have taken a particular stance in regard to sampling and analyzing children's knowledge of literacy and its growth. The main influence was, in the main, studies of emergent literacy (e.g., Teale & Sulzby, 1986) which have examined preschool knowledge and development. But the results indicate that the approach is also appropriate for investigations into the progress of younger primary school children, for the pattern of development is similar.

The findings support the hypothesis that reading and writing are mutually supportive and connected at each step to learners' functional knowledge of the written language system and how it works. The patterns of growth indicate the advantage of integrated models of writing and reading instruction which focus on aspects of content and form. The findings also provide a basis for speculations about how the exercise of one aspect affects or influences progress in the other.

The research took place as a regular part of the school program and as such was carried out within the normal context of a school routine with its central features of teacher-pupil and pupil-pupil relationships intact. It was observational in tone but the environment was carefully constructed in accordance with Hurst's (1985) principles (Appendix A). I expected that this environment, which was also a base for classroom practices, would have a positive influence on children's growth.

The subjects represented a cross-section of pupils attending an inner-city school, including a number of children learning English as a second language. Thus, their home and community environment was not likely a prime factor in their achievement. At the same time, the progress these children made should be accomplished at least as easily by others in more favoured circumstances. While there were instances when the differences in the children's backgrounds seemed to affect their responses, overall it was the similarities that were striking and, therefore, the focus of this report.

Throughout, the children showed a willingness and desire to communicate in written language. They indicated their awareness of the functional aspects of reading and writing prior to their adoption of

conventional form (Halliday, 1975). All the signs indicated that their decisions were deliberate and intellectual in nature, although they may not have been conscious of all the ramifications. The routine remained the same over the two years, but even so, the children retained their enthusiasm and remained eager to participate and to explain their participation. In fact, as Snow (1983) suggested, the regularity of the routine itself may have been a factor for growth.

The investigation showed that children can engage in written language from an early age and through its use can learn about its features. Their reading and writing contained a series of revelations about the content of their world, the level of their intellectual activity, and how they were bringing their knowledge and their intelligence to bear on the task of learning a written language. While they began at different levels, developed at varying rates, and responded in various ways, they progressed in a similar fashion. Taken together, the children's reading and writing convey a cohesive and complementary picture of literacy development.

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Figure Captions

Figure 1. A kid saw(d) a red and pink house.

Figure 2. The captain of the boat.

Figure 3. Jack climbed on the beanstalk but on the way he saw a giant.

Figure 4. It was fun to see the little mouse because the mouse was sneaking behind the cat and the dog was too.

Figure 5. I saw a little girl walking down at night.

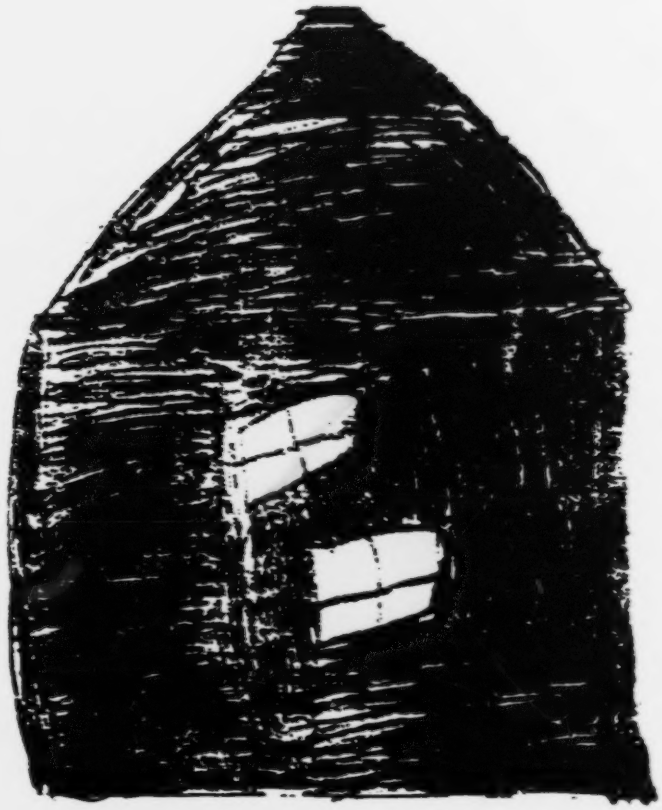

Figure 1

Figure 2

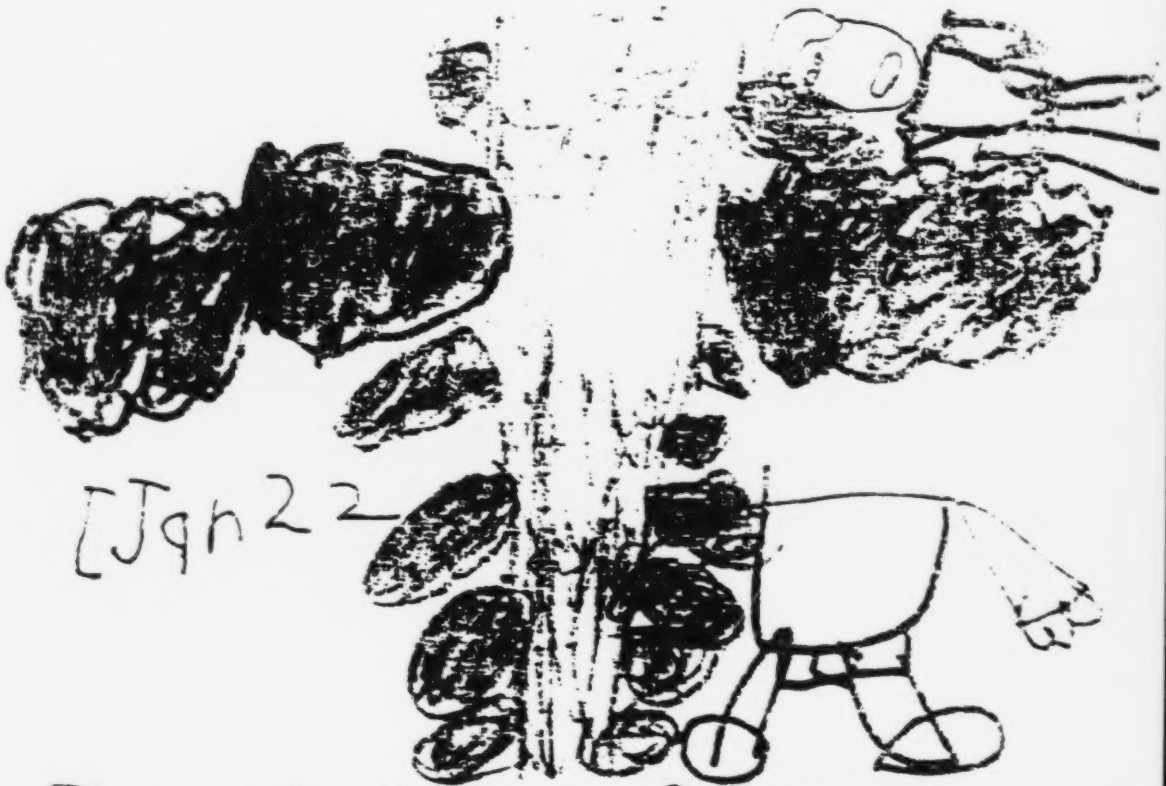

Figure 3

Figure 4

It WAS fun To
See The little
MOS BecoS

The MOS
WaS

SneCing Be Hoind
The CaT and
The Dog WaS To

apr16,1985

Figure 5

APPENDIX A

Principles Which Nurture Literacy

1. Provide a warm social setting.

2. Immerse learners in a literate environment.

3. Accept and encourage successive approximations of literacy.

4. Expect self-selection of materials and of topics.

5. Respond to intended meaning as the absolute priority.

6. Emphasize the process rather than the product.

7. Expect hypothesis-testing and self-correction.

8. Expect a developmental progression along the learning continuum.

9. Evaluate individually and longitudinally (Hurst, 1985).